

Seasonal High Tunnel System for Crops

Vermont Interim Conservation Practice Job Sheet 798



SPECIFICATIONS

Site-specific requirements are listed on the following page(s) of this job sheet. Specifications are prepared in accordance with the Seasonal High Tunnel System for Crops 798 practice standard found in the Vermont NRCS Field Office Technical Guide. Information contained in this document is considered part of the conservation plan.

Photo source: www.hort.cornell.edu/hightunnel

| | | | |
|---------------------|--|-----------------|--|
| Client Name: | | Town: | |
| Farm: | | Tract: | |
| Field: | | Date: | |
| Designed by: | | Program: | |

| | |
|--|--|
| Purpose: This practice will be implemented in order to: <i>Check all that apply</i> | |
| Extend the growing season | Improve soil quality |
| Improve plant quality | Improve water quality from reduced nutrient and pesticide transport |
| Other: (Describe) | |

Definition

A seasonal high tunnel is a polyethylene covered structure at least 6 feet in height, which modifies the climate to create more favorable growing conditions for vegetable and other specialty crops grown in the natural soil within the covered space. Note: electrical, heating and mechanical ventilation systems can be added at the participant's own expense.

Purpose

The purpose of the seasonal high tunnel is to extend the crop growing season, improve plant quality, improve soil quality, and improve water quality from reduced nutrient and pesticide transport.

Where used

A seasonal high tunnel may be used where existing specialty commodity crops are grown in open field conditions, and extension of the growing season is needed due to climate

conditions.

Commercially available high tunnel structures are made in numerous widths and lengths. The high tunnels are constructed of metal or plastic bow frames that are covered with a single or double layer of polyethylene. Ventilation is achieved by means of a combination of roll-up side vents, end vents, occasionally, roof vents and mechanical ventilation. Generally, the end walls are framed-in to create door and ventilation areas. The high tunnel structure covers several crop rows, is wide enough to allow crop growth to full maturity under the tunnel, and is tall enough to allow spraying, cultivation and harvest to occur with the tunnel intact.

Conservation management system

Water runoff from the high tunnels or from other nearby sources can cause erosion and ponding issues that may require the application of other practices such as roof runoff structure, diversions, underground outlets and critical area

plantings. These additional practices must be planned and installed as a condition for the installation of a high tunnel. Additional practices should be considered as a part of a conservation plan, such as nutrient and pest management, crop rotation, cover crop and irrigation system.

Materials List

High Tunnel Structure, size(s) _____

Supporting Practices Required:

Critical Area Planting (job sheet attached)

Roof runoff structure with underground outlets (construction plan attached)

Diversion (construction plan attached)

Cover Crop (job sheet attached)

Crop Rotation (job sheet attached)

Nutrient Management

Pest Management (job sheet attached)

Irrigation System

Other _____

High Tunnel System Construction

- Prepare site according to manufacturer's instructions.
- To reduce drainage costs, high tunnel site should be in A or B hydrologic group soils and on a flat slope (0-3%)
- Lay out building location according to site plan.
- Assemble high tunnel structure according to manufacturer's instructions.
- Install supporting practices as required, according to construction plans provided.
- End walls are required for stability and to reduce wind damage. A variety of styles can be used. Follow manufacturer's instructions.

Operation and Maintenance

- Follow manufacturer's instructions for operation and maintenance of the high tunnel structure.
- Periodically inspect structure and cover for damage. Reinstall or repair promptly.
- Avoid damage to structure from equipment operated in and around the seasonal high tunnel.
- Inspect runoff control measures after every significant rainfall event. Repair promptly.
- Remove snow on and around the structure.

Seasonal High Tunnel System – Construction Checkout

Plan view of seasonal high tunnel system site shown below.



Scale 1"= _____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")



Additional Specifications and Notes:

Empty rectangular box for additional specifications and notes.

Seasonal High Tunnel System – Construction Checkout

| Seasonal High Tunnel Structure – <i>as-built measurements</i> | |
|---|------------------------|
| Length (ft) | Height in Center (ft) |
| Width (ft) | Structure Manufacturer |

| Supporting Practices Installed |
|---|
| <p>Critical Area Planting</p> <p>Roof runoff structure with underground outlets</p> <p>Diversion</p> <p>Cover crop</p> <p>Crop rotation</p> <p>Nutrient management</p> <p>Pest management</p> <p>Irrigation system</p> <p>Other _____</p> |

| CHECK OUT: | |
|---|--|
| Amount Completed: _____ square feet. | Mark As-Built location on plan map. |
| Remarks _____ | |
| This practice meets NRCS standards and specifications | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Check out by: _____ | Date: _____ |

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Producer _____ Location _____
 Field Office _____ Conservation Contract _____
 Report Date _____

Report Due by End of Growing Season Or No Later than December 30, _____

Actual cost of Seasonal High Tunnel System \$ _____ (attach copies of bills)

First year maintenance requirements : (add more sheets if necessary)

| Activity or Item (list) | Cost |
|-------------------------|------|
| | \$ |
| | |
| | |
| | |

Two years of cropping history before installation of Seasonal High Tunnel:

(add more sheets if necessary)

| Crop (type) | Crop Year | Yield | Nutrients (Fertilizer) | | | Pesticide(s) | | |
|-------------|-----------|-------|------------------------|------|--------|--------------|------|--------|
| | | | Type | Rate | Timing | Type | Rate | Timing |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

First year's crop in Seasonal High Tunnel:

| Crop (type) | Crop Year | Yield | Nutrients (Fertilizer) | | | Pesticide(s) | | |
|-------------|-----------|-------|------------------------|------|--------|--------------|------|--------|
| | | | Type | Rate | Timing | Type | Rate | Timing |
| | | | | | | | | |
| | | | | | | | | |

Growing season (2 past years, plus the first year in the Seasonal High Tunnel):

| Crop (type) | Crop Year | Season Dates | Length of Growing Season (Days) |
|-------------|-----------|--------------|---------------------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Benefits for plant quality: _____

Benefits for soil quality: _____

Benefits for water quality: _____

How effective were the drainage features: _____

Producer's recommendations and observations:

Seasonal High Tunnel System – Year Two Annual Report

Producer _____ Location _____
 Field Office _____ Conservation Contract _____
 Report Date _____

Report Due by End of Growing Season Or No Later than December 30, _____

This year’s maintenance requirements : *(add more sheets if necessary)*

| Activity or Item <i>(list)</i> | Cost |
|--------------------------------|------|
| | \$ |
| | |
| | |
| | |

This year’s crop in Seasonal High Tunnel:

| Crop (type) | Crop Year | Yield | Nutrients (Fertilizer) | | | Pesticide(s) | | |
|-------------|-----------|-------|------------------------|------|--------|--------------|------|--------|
| | | | Type | Rate | Timing | Type | Rate | Timing |
| | | | | | | | | |
| | | | | | | | | |

This year’s growing season:

| Crop (type) | Crop Year | Season Dates | Length of Growing Season (Days) |
|-------------|-----------|--------------|---------------------------------|
| | | | |
| | | | |

Benefits for plant quality: _____

Benefits for soil quality: _____

Benefits for water quality: _____

Producer’s recommendations and observations:

Seasonal High Tunnel System – Year Three Annual Report

Producer _____ Location _____
 Field Office _____ Conservation Contract _____
 Report Date _____

Report Due by End of Growing Season Or No Later than December 30, _____

This year's maintenance requirements : *(add more sheets if necessary)*

| Activity or Item <i>(list)</i> | Cost |
|--------------------------------|------|
| | \$ |
| | |
| | |
| | |

This year's crop in Seasonal High Tunnel:

| Crop (type) | Crop Year | Yield | Nutrients (Fertilizer) | | | Pesticide(s) | | |
|-------------|-----------|-------|------------------------|------|--------|--------------|------|--------|
| | | | Type | Rate | Timing | Type | Rate | Timing |
| | | | | | | | | |
| | | | | | | | | |

This year's growing season:

| Crop (type) | Crop Year | Season Dates | Length of Growing Season (Days) |
|-------------|-----------|--------------|---------------------------------|
| | | | |
| | | | |

Benefits for plant quality: _____

Benefits for soil quality: _____

Benefits for water quality: _____

Producer's recommendations and observations:
